

CLAIMS

We claim:

1. A method of conditioning a bulk container for storing a charge of an ultra high purity liquified gas, the container having at least one wall with an interior surface
5 bounding a hollow interior, said method comprising:

(A) providing a conditioning quantity of the ultra high purity liquified gas into the interior of the container so that a gas space is created above the level of said conditioning quantity of liquified gas therein;

(B) imposing a temperature difference on the container to cause said
10 conditioning quantity of liquified gas to produce vapor in said gas space; and

(C) enabling said vapor to condense on the interior surface of the container, without the use of a condenser, whereupon liquid reflux is created, said liquid reflux serving to wash the interior surface of the container to condition it so that the container is ready to accept for storage therein the charge of ultra high purity liquified gas.
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2. The method of Claim 1 wherein at least a portion of said liquid reflux that washes the interior of the container reunites with said conditioning quantity of liquified gas within the container to produce a degraded quantity of the liquified gas, and wherein said method additionally comprises:

20 (D) emptying the container of said degraded quantity of liquified gas; and

(E) filling the container with a fresh charge of the ultra high purity liquified gas.

3. The method of Claim 1 wherein the ultra high purity liquified gas liquifies at a temperature at or above the ambient temperature and wherein said method
25 comprises:

(D) heating the container to impose said temperature difference on the container to produce said vapor for condensation on the interior surface of the container.

4. The method of Claim 3 wherein the amount and/or time of heating of the
5 container is effected under automatic control.

5. The method of Claim 3 additionally comprising:

(E) causing a portion of said vapor to vent from the interior of the container.

10 6. The method of Claim 5 wherein the steps (A) - (E) are repeated at least once.

7. The method of Claim 5 additionally comprising:

(F) reclaiming at least a portion of said vented vapor to produce a quantity of
15 ultra high purity liquified gas.

8. The method of Claim 2 additionally comprising the step of:

(F) reclaiming at least a portion of said degraded quantity of the liquified gas
to render it of ultra high purity.

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9. The method of Claim 1 additionally comprising the step of initially cooling the interior of the tank with a cooling charge of a liquified gas before providing said conditioning charge therein.

25 10. The method of Claim 1 wherein the ultra high purity liquified gas liquifies at a temperature below the ambient temperature, and wherein said method comprises:

(D) causing a portion of said vapor to vent from the interior of the container to cause the portion of said vapor remaining within said gas space to condense on the interior surface of the container to produce said liquid reflux.

5 11. The method of Claim 10 wherein the steps (A) - (D) are repeated at least once.

 12. The method of Claim 10 additionally comprising:

 (E) reclaiming at least a portion of said vented vapor to produce a quantity of
10 ultra high purity liquified gas.

 13. The method of Claim 10 wherein at least a portion of said liquid reflux that washes the interior of the container reunites with said conditioning quantity of liquified gas within the container to produce a degraded quantity of the liquified gas, and wherein
15 said method additionally comprises:

 (E) emptying the container of said degraded quantity of liquified gas; and

 (F) filling the container with a fresh charge of the ultra high purity liquified gas.

 14. The method of Claim 13 additionally comprising:

20 (G) reclaiming at least a portion of said degraded quantity of the liquified gas to render it of ultra high purity.

 15. The method of Claim 10 additionally comprising the step of initially cooling the interior of the tank with a cooling charge of a liquified gas before providing said
25 conditioning charge therein.

16. A bulk container conditioning system, comprising:

(A) a bulk container for storing a charge of an ultra high purity liquified gas, the container having at least one wall with an interior surface bounding a hollow interior;

(B) a conditioning quantity of the ultra high purity liquified gas for disposition
5 in said interior of said container so that a gas space is created above the level of said conditioning quantity of liquified gas;

(C) said system being arranged so that a temperature difference imposed on said container causes said conditioning quantity of liquified gas to produce vapor in said gas space that condenses on said interior surface of said container, without the use of a
10 condenser, to produce a liquid reflux for washing the interior surface of said container to condition said container so that said container is ready to accept for storage therein the charge of ultra high purity liquified gas; and

(E) a valve arranged to be opened for enabling at least a portion of said vapor to vent from said gas space.

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17. The bulk container conditioning system of Claim 16 additionally comprising:

(F) a heating member for heating said container to cause said conditioning quantity of liquified gas to produce said vapor in said gas space.

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18. The bulk container conditioning system of Claim 16 wherein said valve is openable to cause said vapor to condense on said interior surface of said container.

19. The bulk container conditioning system of Claim 16 wherein said liquid
25 reflux that washes the interior of the container reunites with said conditioning quantity of liquified gas within the container to produce a degraded quantity of the liquified gas, and

wherein said container includes at least one port to enable said degraded quantity of the liquified gas to be removed from said container and a fresh charge of said ultra high purity liquified gas to be introduced therein.

- 5 20. The bulk container conditioning system of Claim 16 wherein said tank is insulated.

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